WHAT IS CLAIMED IS:

1. A semiconductor substrate comprising:

an active semiconductor device layer;

a base substrate;

an insulating layer provided between the active semiconductor device layer and the base substrate; and

a neutron conversion layer provided between the active semiconductor device layer and the base substrate.

2. A semiconductor substrate as claimed in claim 1, wherein the neutron conversion layer is located within the insulating layer.

3. A semiconductor substrate as claimed in claim 1, wherein the neutron conversion layer is located between the insulating layer and the base substrate.

4. A semiconductor substrate as claimed in claim 1, wherein the neutron conversion layer is located between the active semiconductive device layer and the insulating layer.

5. A semiconductor substrate as claimed in claim 2, wherein a barrier layer is provided between at least one of the neutron conversion layer and the active semiconductor

device layer and the neutron conversion layer and the base substrate.

6. A semiconductor substrate as claimed in claim 3, wherein a barrier layer is provided between at least one of the neutron conversion layer and the active semiconductor device layer and the neutron conversion layer and the base substrate.

7. A semiconductor substrate as claimed in claim 4, wherein a barrier layer is provided between at least one of the neutron conversion layer and the active semiconductor device layer and the neutron conversion layer and the base substrate.

8. A semiconductor substrate as claimed in claim 1, further comprising a plurality of trenches formed in the active semiconductor device layer and a trench neutron conversion layer formed in at least one of the trenches.

9. A semiconductor substrate as claimed in claim 8, further comprising a trench insulating layer and a trench barrier layer formed between trench neutron converting layer and the active semiconductor device layer.

10. A semiconductor substrate as claimed in claim 2, further comprising a plurality of trenches formed in the active semiconductor device layer and a trench neutron conversion layer formed in at least one of the trenches.

11. A semiconductor substrate as claimed in claim 10, further comprising a trench insulating layer and a trench barrier layer formed between trench neutron converting layer and the active semiconductor device layer.

12. A semiconductor substrate as claimed in claim 3, further comprising a plurality of trenches formed in the active semiconductor device layer and a trench neutron conversion layer formed in at least one of the trenches.

13. A semiconductor substrate as claimed in claim 12, further comprising a trench insulating layer and a trench barrier layer formed between trench neutron converting layer and the active semiconductor device layer.

14. A semiconductor substrate as claimed in claim 3, further comprising a plurality of trenches formed in the active semiconductor device layer and a trench neutron conversion layer formed in at least one of the trenches.

15. A semiconductor substrate as claimed in claim 14, further comprising a trench insulating layer and a trench barrier layer formed between trench neutron converting layer and the active semiconductor device layer.

16. A semiconductor substrate as claimed in claim 1, wherein the neutron

conversion layer includes boron-10.

17. A semiconductor substrate comprising:

an active semiconductor layer;

a base substrate;

an insulating layer formed between the active semiconductor layer and the base substrate;

a plurality of isolation trenches formed in the active semiconductor layer; and

a trench neutron conversion layer formed in at least one of the trenches.

18. A semiconductor substrate as claimed in claim 16, further comprising a trench insulating layer and a barrier layer formed between the trench neutron conversion layer and the active semiconductor layer.

19. A semiconductor substrate as claimed in claim 17, wherein the trench neutron conversion layer comprises boron-10.

20. A method of manufacturing a semiconductor substrate comprising:

forming an active semiconductor device layer on a base substrate;

forming an insulating layer between the active semiconductor device layer and the base substrate; and

forming a neutron conversion layer between the active semiconductor device layer and the base substrate.